

ABSTRACT OF THE DISCLOSURE

In a semiconductor integrated circuit device and a semiconductor integrated circuit chip, being provided for achieving small-sizing and light-weight of the entire cooling structure thereof, without lowering the permissible temperature for an integrated circuit package, a circuit forming layer 2, on which are formed a large number of circuits, is formed on one side surface of a plate-like semiconductor chip 101, and on the other side surface opposing to that forming the circuits thereon, a heat transfer layer 15 is connected with in one body. This heat transfer layer 15 is made of a material similar to that of the semiconductor chip, and within an inside thereof are formed passage ducts 3 to build up a closed flow passage. Within this closed flow passage is enclosed an operating fluid 4, such as, a water or the like, and is provided a resistor film 5 for building up a driving means of the operating fluid, in contact with the operating fluid. Vibration is given to the operating fluid, through evaporation (or bumping) due to heating by means of the resistor film 5, in a pulse-like manner, thereby transferring/diffusing a local increase of temperature, which is generated within the circuit-forming layer 2.